



Defense Technical Information Center

Maintaining the Permanent Availability of DoD R&D

*Federal Library & Information Center Committee
Great Escape Library Orientation Series
Washington, D.C.
February 14, 2006*

Roberta Schoen
Director of Operations

Approved for Public Release

U.S. Government Work (17 USC § 105) Not copyrighted in the U.S. *Information for the Defense Community*





DTIC's Role for Technical Documents

- **Central repository for Department of Defense (DoD) information**
- **Source for acquiring, storing, retrieving, and disseminating scientific and technical information (STI) within DoD.**
- **Support the management and conduct of DoD Research, Development, Test, & Evaluation (RDT&E) efforts.**



Mission Documents

“The Defense Technical Information Center (DTIC) is responsible for collecting all scientific and technological observations, findings, recommendations, and results derived from DoD endeavors, including both in-house and contracted efforts.” DFARS 235.010

- DoDD 3200.12 - Assigns DoD components responsibility for ensuring that DTIC is provided with all pertinent material resulting from Research, Development, Test, and Evaluation (RDT&E) programs. Outlines DoD responsibilities when participating in the DoD Scientific and Technical Information (STI) activities

How DTIC Databases Benefit the R&D Community



- Identifies potentially duplicate efforts
- Allows researchers access to work that has already been performed
- Provides one central place to search all DoD research
- Permits managers to coordinate programs by tracking and linking related work

How DTIC Databases Benefit the R&D Community



- Ensure the preservation and availability of the work over the long-term
- Provides recognition & credit to sponsors, producers, and personal authors
- Enhances efficiency and cost effectiveness
- Provides free access to current S&T data



Technical Reports (TR) Database

- 2 million records
- Security classification (up to Secret)
- Report types (final, journal articles, etc.)
- Release limitations (Distribution Statement A-F or X)
- Formats accepted:
 - Hard copy,
 - Digital files for online publication
 - Multimedia items with color, video, and sound, digital or magnetic nonprint,



Scientific and Technical Reports

- Final reports
- Test reports
- Studies & analyses
- Journal articles
- Copyrighted literature
- Training courses
- Theses & dissertations
- Conference papers
- Patents & applications
- Briefings
- Federally Funded R&D Center reports
- DoD newsletters
- Test or training videos



Who submits technical reports to DTIC?

- DoD
- US Government agencies
- Industrial sector (contractors)
- Universities
- Non-profit organizations participating in scientific & technological activities of the DoD
- Foreign government organizations



International Community

- Information exchange agreements:
Australia France
Netherlands Canada
Germany United Kingdom
- NATO Research and Technology Organization (RTO)
- International Council for Scientific and Technical Information (ICSTI)

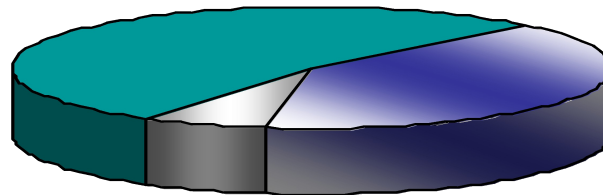


Security Categories of Documents

- **Unclassified, Unlimited**
- **Unclassified, Limited**
- **Classified (through Secret)**
- **Classified Limited, Special Category**

Unclassified, Unlimited

51%



Unclassified, Limited
41%

Classified
8%



Obstacles

- Unauthorized dissemination or unclear markings
- Readily found in the open literature (Internet)
- In-house document management
- Cost (Time & \$\$) to participate in STI programs
- No enforcement of requirements
- Compound documents/dynamic HTML
- Copyrights (misunderstanding of government limited rights)



NIH Open Access

- Since May 2, 2005, NIH-funded investigators are requested to submit to the NIH National Library of Medicine's (NLM) PubMed Central (PMC) an electronic version of the author's final manuscript upon acceptance for publication, resulting from research supported, in whole or in part, with direct costs from NIH.



NIH Open Access

- **Government-authored works can have no copyright**
- **Government asserts rights to funded works, after 12 month wait**
- Public can obtain articles free from PubMed
- Helps authors apply for new NIH grants
- NIH System voluntary – receiving ~4%
- Should other agencies do something similar?



Preservation of S&T

DTIC - DoD's central repository for STI. Our views are influenced from participation in:

- **CENDI**, interagency working group of senior Scientific and Technical Information Managers from ten U.S. Federal Agencies (federal)
- **NFAIS**, National Federation of Abstracting and Information Services, which serves those groups that aggregate, organize, and facilitate access to information (national)
- **ICSTI**, The International Council for Scientific and Technical Information (international)
- **CODATA**, International Council for Science - Committee on Data for Science and Technology (international)
- **NISO**, National Information Standards Organization



COSATI History

- **COSATI stands for Committee on Scientific and Technical Information**
- **COSATI standard for descriptive cataloging of Technical Reports was developed in 1966**
- The standard was developed to meet the unique needs in processing technical reports for the four federal agencies- NASA, DOE, NTIS, DDC (DTIC)



COSATI History

- In the late 50s and early 60s there was an increase in the volume of scientific and technical literature
- AACR2 cataloging rules guiding the LC MARC format had to be stretched and data forced into some fields
- Technical reports unique data elements, such as report numbers, contract numbers, etc., couldn't be well represented in the MARC format



COSATI Rules

- **COSATI rules for cataloging were first published in 1966 by the U.S. Federal Council for S & T**
- They were updated in 1978 by the Committee on Information Hang-Ups (an informal group of Washington D.C. librarians)
- In 1983, a data element dictionary for the five federal agencies was published (GPO joined later)
- It was updated in 1985 by CENDI (Commerce, Energy, NASA, and Defense)



MARC/COSATI Comparison

- Title page almost always present
- Published
- Personal author or corporate author
- Standard identifying number
- Carries ISSN/ISSBN
- All field classifications can't be well represented
- Generally without title page (RDP)
- Unpublished
- Both personal author and corporate author, monitoring & performing organizations.
- Report number (non-std)
- Carries contract, work unit, project #s, etc.
- All field classifications can be well represented



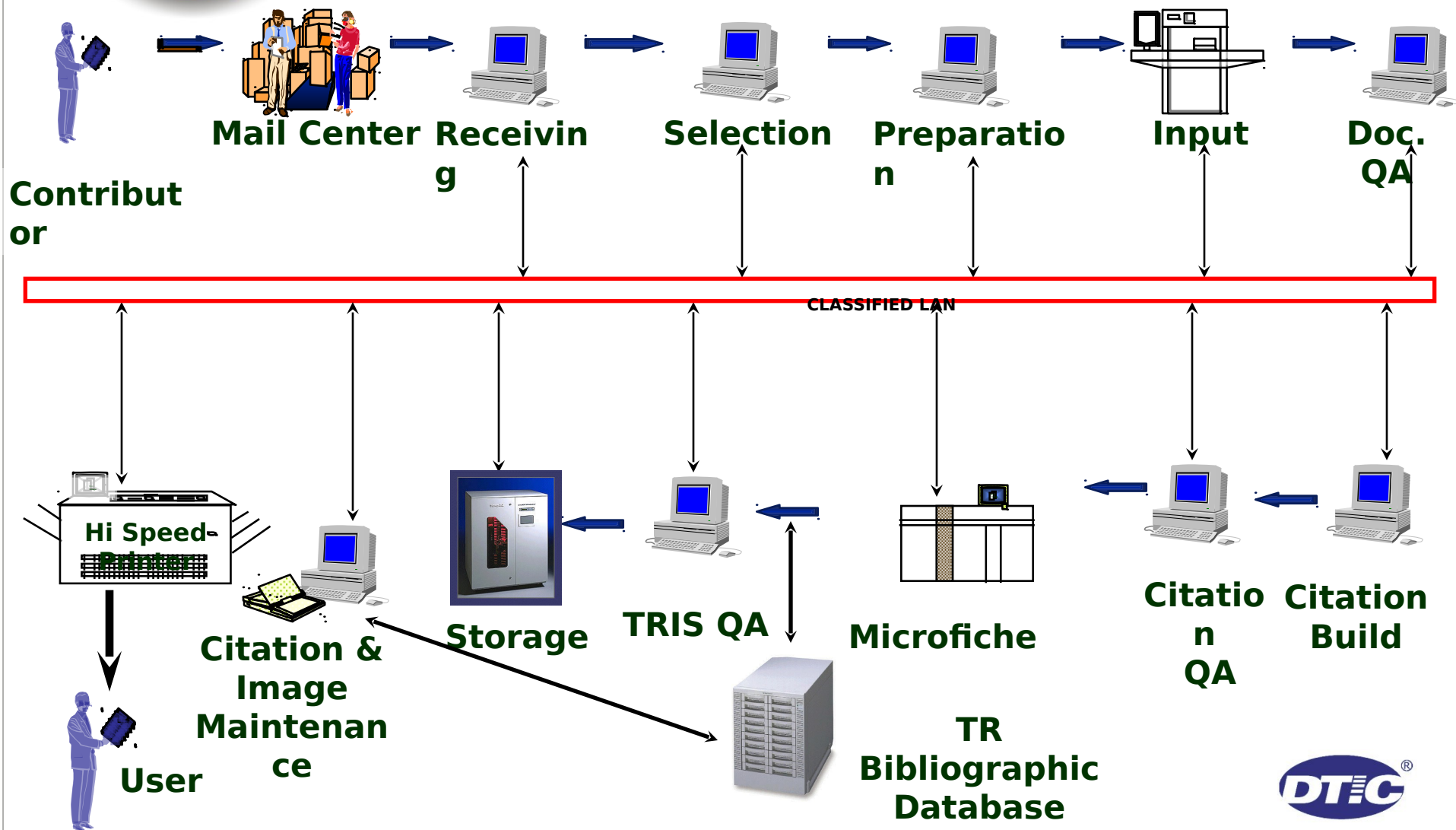
EDMS-Electronic Document Management System

EDMS automated many manual operations and provided a system in which information is captured, managed, stored, retrieved, and delivered electronically.

- Digitize Documents *vice* Microform
- Create Bibliographic Data using Client/Server GUI *vice* Terminal Emulation with Command Prompt
- Unclassified Processing - Operational Nov 1994
- Classified Processing - Operational May 1997
- ~400,000 Documents Processed via EDMS
- ~1.6 million microform in Legacy Collection



EDMS Document Workflow



SYSTEM HARDWARE COMPONENTS

**Input Server
SPARC 100~**

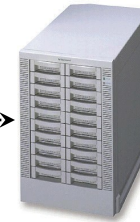


**RAID
Storage Array
(11.5 GB)**

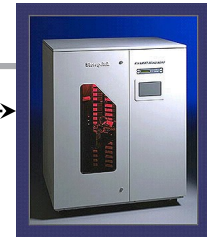
**Master Server
SPARC 3000**



**Magnetic
Disk
Subsystem**



**Automated
Tape Library**



CLASSIFIED LAN (Ethernet)

**Flatbed
Scanners
(7)**



**Hi-Speed
Printer**



**COM
Printer**



**High
Speed
Scanners
(3)**



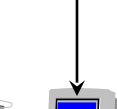
**Microfilm
Scanner**



**Microfiche
Scanner**



**Workstation
(~50)**





Microform Conversion

- **Backfile Conversion**
 - 1.6 million documents on microform
 - Convert document when ordered
 - Links image with existing citation in TR database
- **Air Technical Index (ATI) Collection (1945-1952)**
 - 80,000 documents on microfilm, only card citation
 - Poor quality (non-standard) microfilm
 - Unable to scan in continuous mode
 - Convert document when ordered



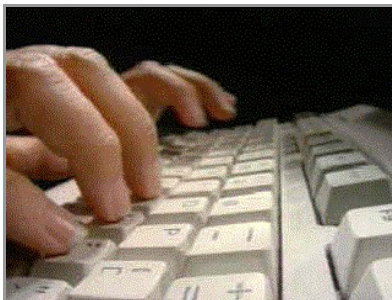
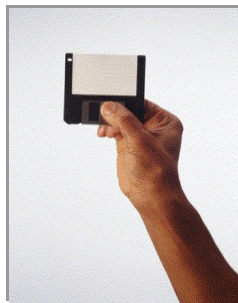
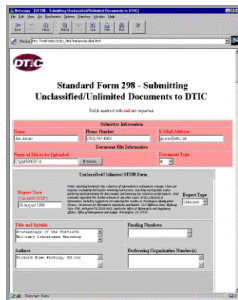
DRS/Olive Bulk Microfiche Conversion

- **Olive system (DRS scanner)**
 - Good images if duplicate fiche first
 - As digitize older documents, we need to reexamine need for bitonal TIFF vs. PDF from scanner output
 - FY05 – Scanned 1,000,000 images, ~12,000 documents
 - For FY06 we have a second system running
 - Quality Assurance (QA) of images – labor intensive
 - Training personnel, more computer oriented work



Electronic Document Submission

Attached Electronic 298 Web Form Document File



Web Form

- ◆ Contributor enters required user and citation data
- ◆ Edit checks built in to verify data
- ◆ Field at the top of the Form 298 for attaching electronic document file
- ◆ Button on the bottom of the Form 298 for transferring data to DTIC Server

Electronic Document File

- ◆ PDF
- ◆ TIFF



Electronic Document Management System

MAIN MENU

DTIC EDMS Release 2.2.4, User is gnair, Database is edms

Document Transfer/Receive Request Reports System Admin Release Notes Quit Help

Receiving

Selection

Preparation

Input

Document QA

Citation Build

Citation QA

Microfiche

IRIS QA

Duplicate Check

DTIC EDMS

Acquiring Information-
Imparting Knowledge



Selection Stage

19971027071 Document Image

SF 298

1. Report Date (dd-mm-yy) 23 October 1997	2. Report Type	3. Dates covered (from...to)
4. Title & subtitle Millimeter-wave Schottky Mixer Receivers for Applications in Antenna Measurements and Radio Astronomy.	5a. Contract or Grant # F41624-83-C-5001	5b. Program Element #
5. Author(s) Jennifer J. Whitestone	5c. Project #	5d. Task #
	5e. Work Unit #	
7. Performing Organization Name & Address	8. Performing Organization Report #	
9. Sponsoring/Monitoring Agency Name & Address	10. Monitor Acronym	
	11. Monitor Report # S-188	
12. Distribution/Availability Statement Distribution A: Approved for Public release		
13. Supplementary Notes		
14. Abstract In many applications at millimeter frequencies of the electromagnetic spectrum the sensitivity of the receiving system is primary importance. Such applications are especially radio astronomy, remote sensing of atmosphere and plasma physics. Observation time required to reach a certain measurement. Sensitivity is proportional to the square of the system noise temperature.		
15. Subject Terms		
16. Report	17. Abstract	18. This Page
19. Limitation of Abstract	20. # of Pages	21. Responsible Person (Name and Telephone #)

Selection

SPN: 19971027071

Spell Check Abstract

Duplicate Check & OCR

Report Date (11)
OCT 1997

Unclassified Title (6)
Millimeter-wave Schottky Mixer
Receivers for Applications in Antenna
Measurements and Radio Astronomy

Authors (10)

Report Numbers (14)

Contract Numbers (15)

Abstract (27)



Citation Build Stage

Citation Build

Distribution

☒ All

☐ Limited

☐ Unlimited

Media Type

☒ All

☐ Multi-Media

☐ Paper

Status

☒ All

☐ Active

☐ Hold

Document Type

☒ All

☐ Older

☐ Other

Document Class

☐ Unclassified

☒ Classified

G/S	AD Number	SPN	Parent ID	Status	Reason	CL	Dist	Subject Term	User	NT	View
		1996 0919 000				R	16	Math & Comp Sci	JAKBA		
		1996 1016 007				S	2	Behav & Soc Sci	JAKBA		
		1996 1016 009				S	16	Math & Comp Sci	EMEDV		
G		1996 1025 003	1996 1025 005			R	5		PMOUN	N	
S		1996 1122 002	1996 1122 002			S	5	Math & Comp Sci	EMEDV		
S		1996 1122 005	1996 1122 002			S	4	Math & Comp Sci	JVICT		
G		1996 1125 002	1996 1125 004			S	3	Math & Comp Sci	EMEDV		
G		1996 1125 003	1996 1125 004			C	3	Math & Comp Sci	JVICT		
		1997 0117 000				S	1		EMEDV		
		1997 0117 001				S	4		JAKBA		
		1997 0117 002				R	1		EMEDV		
		1997 0121 000				C	1		EMEDV		
		1997 0121 001				R	1		EMEDV		

Document Catalog

Document Actions

Order By

☐ Group/Split

☐ AD Number

☒ SPN

☐ Parent ID

☐ Status

☐ Reason

☐ Class

☐ Distribution

☐ Subject Term

☐ User



Citation Build/Catalog View

19971027071 Document Image

SF 298

1. Report Date (dd-mm-yy) 23 October 1967		2. Report Type		3. Dates covered (from-to)	
4. Title & subtitle Millimeter-wave Shootky Mixer Receivers for Applications in Antenna Measurements and Radio Astronomy.		5a. Contract or Grant # F41624-63-C-8001		5b. Program Element #	
5. Author(s) Jennifer J. Whitestone		5c. Project #		5d. Task #	
		5e. Work Unit #			
7. Performing Organization Name & Address			8. Performing Organization Report #		
9. Sponsoring/Monitoring Agency Name & Address			10. Monitor Acronym		
			11. Monitor Report # 9-188		
12. Distribution/Availability Statement Distribution A: Approved for Public release					
13. Supplementary Notes					
14. Abstract In many applications at millimeter frequencies of the electromagnetic spectrum the sensitivity of the receiving system is primary importance. Such applications are especially radio astronomy, remote sensing of atmosphere and plasma physics. Observation time required to reach a certain measurement. Sensitivity is proportional to the square of the system noise temperature.					
15. Subject Terms					
16. Report		17. Abstract		18. This Page	
19. Limitation of Abstract		20. # of Pages		21. Responsible Person (Name and Telephone #)	

Citation Build

SPN: 19970121002

Spell Check Abstract

Default from Split/Group: None

Descriptive Note (9)

Serial Code (34) Report Date (11)

Report Numbers (14)

Contract Numbers (15)

Project Numbers (16)

Program Element Number

Task Number (17)

Work Unit Number

Monitor Acronyms (18) Monitor Numbers (19)

Regrade Date (11a)

Regrade Code (32)

A & I Save Clear Cancel Help



Machine Aided Indexer (MAI) Screen

MAI

Search By

- Partial Word
- Single Word Browse
- Thesaurus
- Hierarchy

Keyword Phrase

ARRAYS

Keyword Link

Search

Add to Identifier

Next Link

Invalid Terms

Comments

Valid Keywords

ARRAYS

- NT *ACOUSTIC ARRAYS
- NT *ANTENNA ARRAYS
- NT LASER ARRAYS
- NT LINEAR ARRAYS
- NT PHASED ARRAYS
- NT SEISMIC ARRAYS
- NT SUSPENDED ARRAYS

Add Term >>

Add ALL >>

Toggle Weight >>

<< Move Term

<< Move ALL

Posting Terms (23)

Identifiers

*LINEAR ARRAYS

Delete Keyword **Follow Term** **Thesaurus** **Hierarchy** **OK** **Clear** **Cancel** **Help**



EDMS Corporate Source Screen

Corporate Source

Search By

- ◆ Source Code
- ◆ Catalog/Corporate Name
- ◆ "SEE" Cross Reference
- ◆ Acronym

Search String

AIR FORCE RESEARCH I

City

State

Corporate Sources

412718	AIR FORCE RESEARCH AND TECHNOLOGY LIAISON OFFICE	GOLDEN CO
442053	AIR FORCE RESEARCH LAB BROOKS AFB TX	OPTICAL RADIATION
442541	AIR FORCE RESEARCH LAB EDWARDS AFB CA	MOTOR BRANCH
441316	AIR FORCE RESEARCH LAB EGLIN AFB FL	
442752	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	ANALYTICAL STRUCTURAL MECHANICS B
442889	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	CONTROL SIMULATION AND ASSESSMENT
443533	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	INTEGRATION AND DEMONSTRATION
443564	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	MULTIDISCIPLINARY TECHNOLOGIES CE
442529	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	PROPULSION SCIENCE BRANCH
441778	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	STRUCTURAL VIBRATION AND ACOUSTIC
444285	AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH	TECH PROCUREMENT

Search Info OK Clear Cancel Help



EDMS COSATI Code Screen

Cosati Codes

SPN: 20040423164

Available COSATI Codes

- 20/00 Physics
- 20/02 Crystallography
- 20/03 Electricity and Magnetism
- 20/04 Fluid Mechanics
- 20/05 Atomic and Molecular Physics and Spectroscopy
- 20/06 Optics
- 20/06.01 Fiber Optics and Integrated Optics
- 20/07 Particle Accelerators

Add Primary >>

Add Secondary >>

Add Marginal >>

<< Remove

Selected COSATI Codes

- P20/01 Acoustics

OK Cancel Help



Reports

Document Status Report

View File: Document Status Report

Document Status Report

AD Number: ADC043708 SPN: 19970103005 Current Date: 02/26/1997

Title: FIRE EXTINGUISHING AGENTS FOR ROCKET FUELS

Classification: S Copies: 1 Days in In-Processing 38

Loan Status: Regular

Status	Reason	Date	Number of Days	Operator
NORMAL			0	Admin

Pipeline Progress:

Receiving:	Selection:	Preparation:
Date In: 01/03/97	Date In: 01/03/97	Date In: 01/03/97
Date Out: 01/03/97	Date Out: 01/03/97	Date Out: 01/03/97
Operator ID: JVICT	Operator ID: JVICT	Operator ID: JVICT

Scanning:	Document QA:	Citation Build:
Date In: 01/03/97	Date In: 01/03/97	Date In: 01/03/97
Date Out: 01/03/97	Date Out: 01/03/97	Date Out: 01/03/97
Operator ID: JVICT	Operator ID: JVICT	Operator ID: JVICT

Security Review:	Microfiche:	TRIS:
Date In: 01/03/97	Date In:	Date In:

Printer:

Print

Close

Help



High Speed Scanner

- **Three TDC Docuscan 4000**
- Resolution: 300 DPI
- Bitonal / TIFF 6.0 w/ Group 4 compression
- Features
 - Auto Edge Detection centers undersize documents to 8.5" x 11"
 - Onionskin to 200 lb. bond paper
 - Throughput
 - Rated: 43 pages/min (2-sided)
 - Actual: 60 Documents/day
 - High Reliability

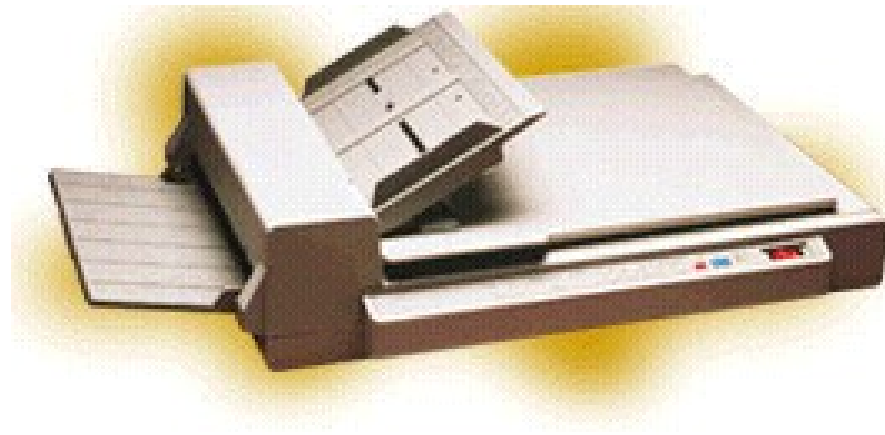




Flatbed Scanners

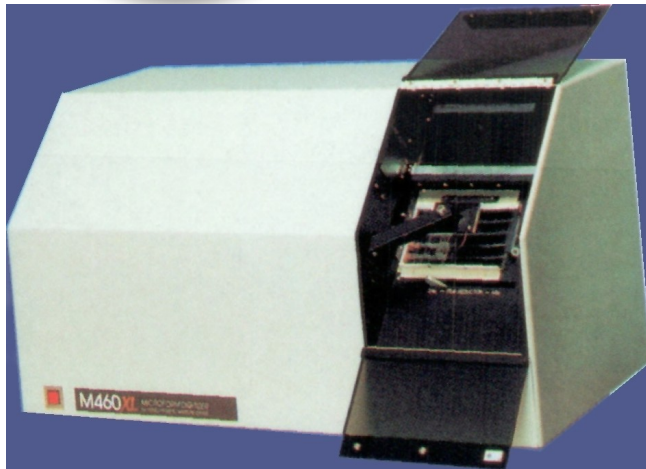
- **Fujitsu M3096GX**

- 300 dpi
- 22 ppm @ 200 dpi
- Automatic Document Feeder (ADF)
- ADF Capacity: 50 sheets
- Max Paper Size; 11.7" x 17"
- Supports 8 bit gray scale





Microform Scanners



- **Incremental Backfile Conversion**

- 1.7 million documents on MF
- Convert Document when ordered
- Customized Interface Links Image with Citation Already on TR DB

Mekel M560 Microfiche Scanner



- **All Technical Index (ATI)**

- 80,000 Documents on Microfilm
- Poor Quality (non-standard) Microfilm
- Unable to scan in continuous mode

Mekel M500 Microfilm Scanner



Computer Output to Microfiche (COM) Unit

- **MTC 6832 COM Printer**
 - 300 dpi output
 - Equipment needs frequent adjustments





High Speed Laser Printer

- **Xerox Docuprint 6135**
 - Throughput of up to 135 pages per minute
 - 600 dpi resolution
 - Automatic two-sided printing Staples (<70 pages)
 - Thermal Binding (<200 pages)





Archival Storage

**Master
Server
SUN**

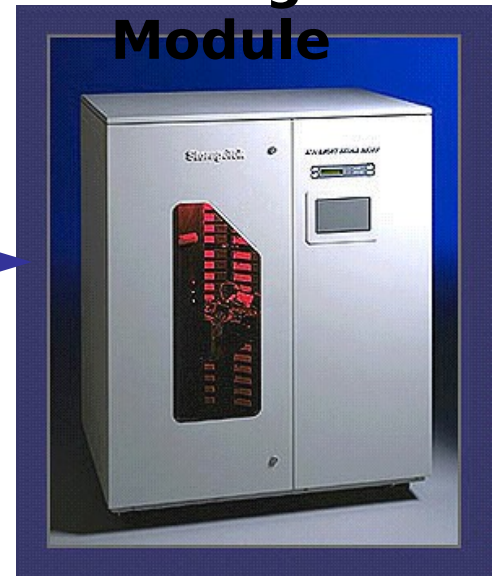
**Enterprise
3000**



**CLARiiON
RAID Disk Subsystem**



**StorageTek'
s 9714
Library
Storage
Module**

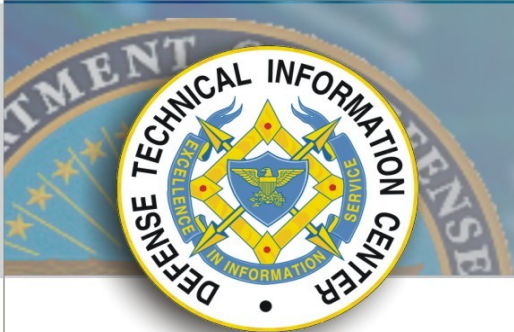




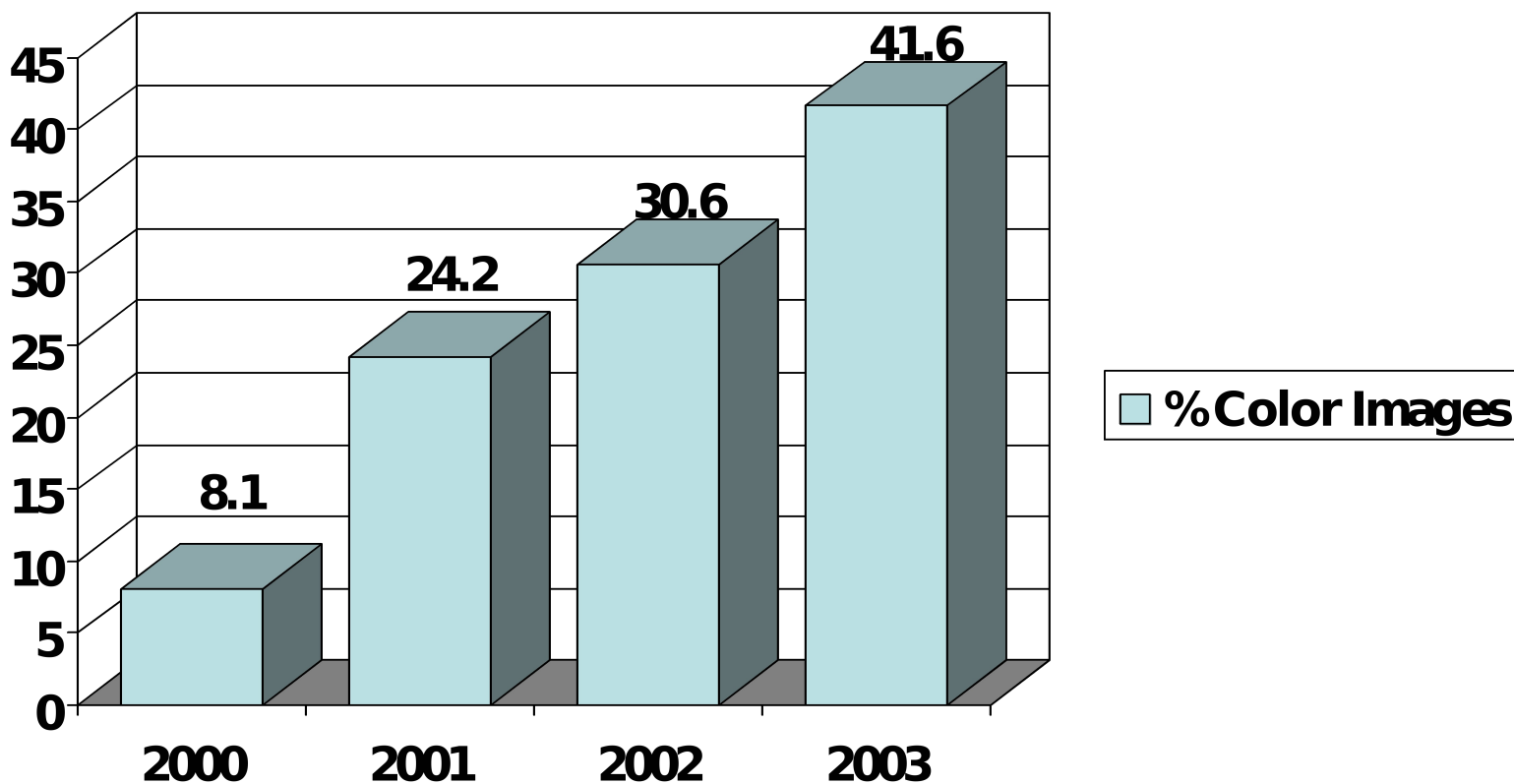


EDOCs Have Surpassed Paper for New Documents

	% EDOCS	% EDOCS
<u>Added to Collection</u>		<u>Compared to</u>
<u>New Paper</u>		
2004	34%	
68.5%		
2005	47%	
113%		



% of Documents with Color Images

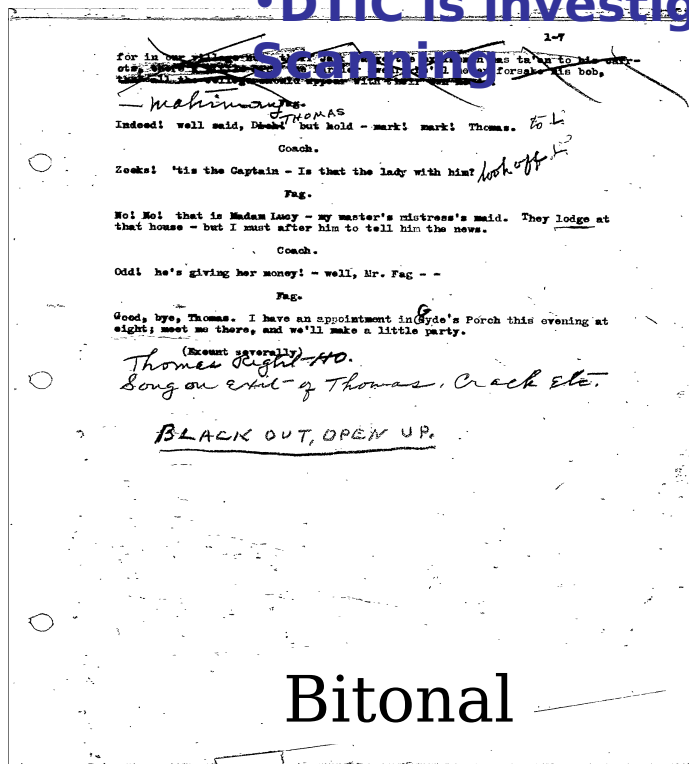




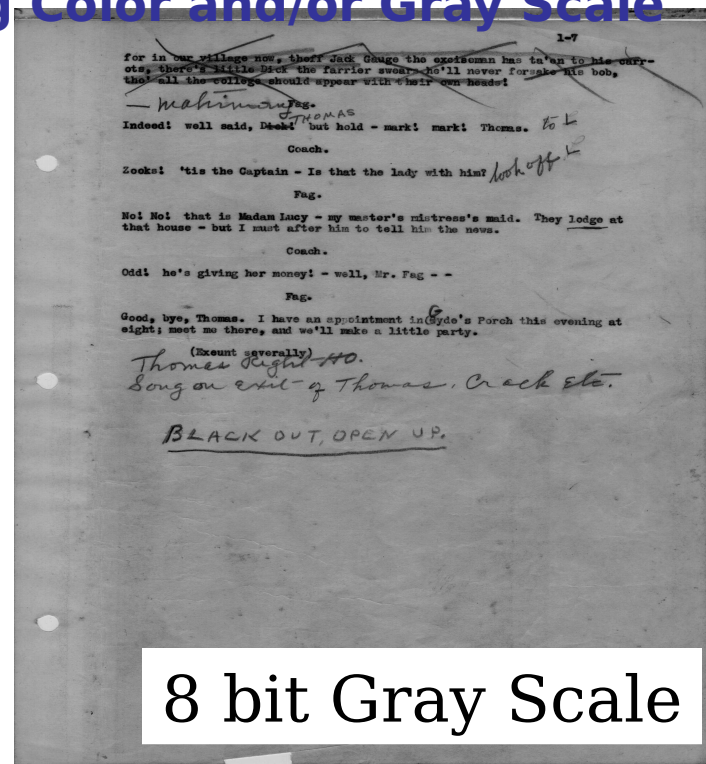
Gray Scale and/ or Color Imaging

- Documents that incorporate Color and Gray Scale are increasing
- Bitonal is inadequate when scanned items contain photographic information or color content is important
- DTIC is investigating Color and/or Gray Scale

Scanning



Bitonal



8 bit Gray Scale





Where do we go from here?

- **Need for EDMS upgrades or EDMS II**
- **Color document processing**
- **Non traditional documents, compound documents/digital objects**
- **More electronic**
- **Automated harvesting**
- **Classification/security issues will continue**
- **Full text/retrieval**
- **Output formats**
- **Digital preservation**
- **Journal access letter from DoD?**



Online Resources

- **Submitting to DTIC**
<http://www.dtic.mil/dtic/submitting/index.html>
- **Nonprint Products Catalog**
<http://www.dtic.mil/dtic/npcatalog/index.html>
- **Selection Criteria**
<http://www.dtic.mil/dtic/submitting/contrib2.html>
- **Electronic Submission**
http://www.dtic.mil/dtic/submitting/elec_subm.html
- **DoD Directive 3200.12**, *DoD Scientific and Technical Information Program*
<http://web7.whs.osd.mil/pdf/d320012p.pdf>
- **DoD Directive 3200.14**, *Principles & Operational Parameters of the STIP*
<http://web7.whs.osd.mil/pdf/i320014p.pdf>
- **DoD Directive 5230.24**, *Distribution Statements*
<http://web7.whs.osd.mil/pdf/d523024p.pdf>
- **DTIC Cataloging Guidelines**
<http://www.dtic.mil/dtic/pubs/catlines.html>



Defense Technical Information Center

Questions?

**Roberta Schoen
Director of
Operations**



Disclaimer of Endorsement

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.